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thoroughness in this work, as it gives an opportunity to compare the results of the labors of entomologists and mycologists.

As a piece of book making, the work leaves nothing to be desired. It forms the second volume of the Rural Science Series, edited by Professor L. H. Bailey of Cornell University.—J. C. A.

### A new "Vegetation der Erde."

THE CLASSICAL *Vegetation der Erde* of Grisebach will always be looked upon as one of the great books upon the distribution of plants. But recent progress has brought to knowledge much of detail which now needs to be incarnated in general principles. In brief, such is the plan of Professors Engler and Drude. They propose to edit a collection of monographs upon the various phases of plant geography under the general title *Vegetation der Erde*, thinking that the time is ripe for at least beginning a publication which shall, on the one hand, bring to light the lifelong work of some of the older savants, and, on the other, enable younger investigators to know what needs to be done and to plan their studies accordingly.

No definite order for the monographs can be announced, and almost entire freedom will be allowed individual contributors in the arrangement of their material. Naturally the countries of central and western Europe will be the first to be treated, on account of the more thorough study to which they have been already subjected. Each monograph will constitute an independent volume, to be published in the German language, by translation, if need be, from the native tongue of the author. The editors themselves promise some of the general work upon plant geography and plant history, together with the special treatment of certain regions.

This is a courageous plan, demanding even more optimism and energy than the inception of the great *Pflanzenfamilien* which is now nearing completion. We trust that the senior proposer, Professor Engler, of Berlin, will be enabled to see this materialize, as he has seen his monumental *Pflanzenfamilien*. Certainly he will have an able coadjutor in Professor Drude of Dresden. No one who inspects the tentative outline of the work can fail to be impressed with its comprehensiveness. Three sections are suggested. The first, treating of climatology in its influence upon the distribution of plants, the developmental history of floras, and phylogenetic investigations upon geologic and biological principles, will naturally be the last to begin. The second will treat the plant formations, especially those of Europe and neighboring regions, while the third will discuss the principles of plant distribution as illustrated by natural floral regions.

An editorial in this journal recently<sup>4</sup> urged students, instead of compiling state floras after the usual pattern, to work out carefully the distribution

<sup>4</sup> BOTANICAL GAZETTE 21: 303. May 1896.

of plants in relation to others and to geographic and climatological features. If any one desires to see what this suggestion means in detail he would do well to examine the first volume of this projected *Vegetation der Erde*, namely, Willkomm's *Grundzüge der Pflanzenverbreitung auf der iberischen Halbinsel*.<sup>5</sup>

The Iberian peninsula is particularly well suited for a special study of this kind, cut off as it is from the rest of Europe by the Pyrenees. While its limit is thereby defined its interior presents exceedingly diversified conditions, the rainfall alone varying from less than 300<sup>mm</sup> in small regions about Salamanca and Lérida, to over 1600<sup>mm</sup> about Santiago and Roncesvalles, while a large part of the table-land of Old Castile, New Castile, and Aragon receive less than 400<sup>mm</sup>. With six mountain systems, in five of which peaks and chains reach the alpine region, and in one the snow-line with peaks of 11,000 feet; with a coast line of 2250 miles, sometimes abrupt, sometimes sand dunes backed by marshes, as diversified a surface as can well be imagined is presented.

After giving an account of the history and literature of botanical exploration in the peninsula and its physical features, Willkomm discusses the peculiarities of the combination of the Iberian flora and its biological statistics; the distribution of the plant formations; the limits of various species whose polar or equatorial limit is therein reached; and the relation of the Spanish-Portuguese flora to that of neighboring countries and islands.

The second part, which constitutes the larger part of the book, depicts the formations and the collective vegetation in each of the five districts into which he divides the region, viz., the Pyrenaic, North Atlantic, central Mediterranean, south Atlantic, and west Atlantic. An appendix treats of the changes in the vegetation through cultivated and adventive plants.

It is impossible for any foreigner to criticise such a work, whose details must be tested by local botanists; but it cannot fail to leave an impression of great thoroughness. To it the venerable author had devoted a good share of his life. It was fortunate indeed for us that he was able to complete the manuscript and to see more than half of it through the press before his death a few months ago. A more auspicious beginning of Engler and Drude's great work could scarcely have been made.

From the publisher's point of view the book is faultless. The two maps, one showing isohyets and the other the steppes and the vegetation limits, are exquisite specimens of modern cartography.—C. R. B.

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#### MINOR NOTICES.

DR. T. F. ALLEN has published another fascicle of his *Characeæ of America*, being part II, fascicle 3. Ten species of *Nitella* are described, and

<sup>5</sup>WILLKOMM, MORITZ. *Grundzüge der Pflanzenverbreitung auf der iberischen Halbinsel*. 8vo, pp. xvi + 395, f. 21, pl. 2, maps 2. Leipzig: Wilhelm Engelmann. 1896. M. 12 unbound; M. 13.50 bound.